AMENDMENTS TO THE SPECIFICATION

Please replace paragraph [0037] with the following rewritten paragraph [0037]:

[0037]

In a wireless communication apparatus according to this second embodiment of the invention, the transmission path fluctuation period detection unit 101b thus estimates the time in which the transmission path fluctuation ~~period~~, which is in a constant time-based relationship to the electric signal, increases. Operation based on the transmission path fluctuation period signals Tv1 and Tv2 is the same as in the first embodiment. If the delay time of the photoelectric conversion device is known, the wireless communication apparatus of the present invention can detect the transmission path fluctuation period more accurately.

Please replace paragraph [0058] with the following rewritten paragraph [0058]:

[0058]

Furthermore, an AC power supply meter 105 is rendered inside the transmission path fluctuation period detection unit ~~101~~101d in a wireless communication apparatus according to this embodiment of the invention, but the transmission path fluctuation period can be detected in the same way using a photoelectric conversion unit 106 as described in the second embodiment.

Please replace paragraph [0066] with the following rewritten paragraph [0066]:

[0066]

Waveform ~~212~~204 in Fig. 11 shows the packet transmission timing after transmission control based on the transmission path fluctuation period is applied.

A wireless communication apparatus according to this embodiment of the invention can thus detect the fluctuation cycle of the wireless transmission path and the transmission path fluctuation period from response packets received from the destination

terminal in response to wireless packets sent by the wireless communication apparatus of this embodiment, and by stopping data transmission when sudden transmission path fluctuation occurs the wireless communication apparatus of this embodiment can avoid communication data errors.

Please replace paragraph [0070] with the following rewritten paragraph [0070]:

[0070]

Fig. 12B is a block diagram of the transmission control unit ~~102~~102b shown in Fig. 12A. Like elements in Fig. 12B and the first embodiment shown in Fig. 2C are identified by like reference numeral, and further detailed description thereof is omitted here.

Referring to Fig. 12B, synchronization timer 305 receives the transmission path fluctuation period signals Tv1, Tv2 from the transmission path fluctuation period detection unit 101 shown in Fig. 12A and outputs how much time there is when there is no transmission path fluctuation until transmission path fluctuation occurs again.

When data is received from the transmission data buffer 306, the transmission frame generator 314 determines based on the signal from the synchronization timer 305 if the packet transmitted next will be transmitted during a transmission path fluctuation period. If the wireless packet transmission period is coincident to the transmission path fluctuation periods Tv1 and Tv2, information indicating that low bit rate modulation was applied is added to the header of the transmitted frame. Conversely, if the wireless packet transmission period does not overlap transmission path fluctuation period Tv1 or Tv2, information indicating high bit rate modulation is added to the header of the transmitted frame. The multirate modulator 113 applies low bit rate modulation (such as QPSK modulation) to transmission frames having information indicating low bit rate modulation in the header, and applies high bit rate modulation (such as 64QAM) to transmission frames having information indicating high bit rate modulation in the header.

Please replace paragraph [0077] with the following rewritten paragraph [0077]:

[0077]

The operation whereby this embodiment of the invention detects the transmission path fluctuation period is the same as described above in the first embodiment.

Based on the signals Tv1 and Tv2 denoting the result of transmission path fluctuation period detection output from the transmission path fluctuation period detection unit 101a, the destination terminal selection control unit 114 in the transmission control unit 102c selects communication with wireless terminal B 116 where a discharge lamp is not present in the transmission path if communication occurs during transmission path fluctuation periods Tv1 and Tv2, but if transmission is during a period not including transmission path fluctuation periods Tv1 and Tv2, the destination terminal selection control unit 114 selects communication with wireless terminal A 115 where a discharge lamp is present in the transmission path or communication with wireless terminal B 116 where a discharge lamp is not present in the transmission path. The transmission unit 103 then transmits the wireless packets received from the transmission control unit ~~102~~ 102c.

Please replace paragraph [0078] with the following rewritten paragraph [0078]:

[0078]

Fig. 14B is a block diagram of the transmission control unit ~~102~~102c shown in Fig. 14A. Like elements in Fig. 14B and the first embodiment shown in Fig. 2C are identified by like reference numeral, and further detailed description thereof is omitted here.

Please replace paragraph [0079] with the following rewritten paragraph [0079]:

[0079]

Referring to Fig. 14B, synchronization timer 305 receives the transmission path fluctuation period signals Tv1, Tv2 from the transmission path fluctuation period

detection unit 101a shown in Fig. 14A and outputs how much time there is when there is no transmission path fluctuation until transmission path fluctuation occurs again.

The transmission control unit 102c in a wireless communication apparatus according to this embodiment of the invention has two transmission data buffers, transmission data buffer 315 for communicating with wireless terminal A, and transmission data buffer 316 for communicating with wireless terminal B.

The transmission frame generator 317 has a destination addressing unit 329 and controls adding the destination address based on signals from the synchronization timer 305. If any part of the wireless packet transmission period overlaps transmission path fluctuation periods Tv1 and Tv2, transmission frame generator 317 reads data from wireless terminal B transmission data buffer ~~116~~316 and adds the address for wireless terminal B to the header of the transmission frame. However, if the wireless packet transmission period does not overlap any part of transmission path fluctuation periods Tv1 and Tv2, transmission frame generator 317 reads data from wireless terminal A transmission data buffer 315 or wireless terminal B transmission data buffer 316, and adds the address of the corresponding destination terminal to the transmission frame header. The address transmission frame is then sent to the modulator 330 for modulation, and then sent to the transmission unit 103.

Please replace paragraph [0083] with the following rewritten paragraph [0083]:

[0083]

As shown in Fig. 16A, a wireless communication apparatus according to this embodiment of the invention communicates with two wireless terminals, wireless terminal A 115 and wireless terminal B 116.

Fig. 17 is a waveform diagram with time on the horizontal axis describing the operation of the wireless communication apparatus according to this ~~seventh~~eighth embodiment of the invention.

Like elements and waveforms in Fig. 16A and Fig. 17 and in Fig. 2A and Fig. 2D according to the first embodiment described above are identified by like reference numerals, and further description thereof is omitted here.

The operation whereby this embodiment of the invention detects the transmission path fluctuation period is the same as described above in the first embodiment.

Please replace paragraph [0084] with the following rewritten paragraph [0084]:

[0084]

In Fig. 17 waveform 215 represents packets received by the wireless communication apparatus from wireless terminal A 115, and waveform 216 represents packets received by the wireless communication apparatus from wireless terminal B 116. Data errors occur during the transmission path fluctuation period 203 detected by transmission path fluctuation period detection unit ~~101~~101a in the packets received from wireless terminal A. Errors do not occur in the packets received from wireless terminal B, however. The reception unit 108 outputs data error information for the packets received from each wireless terminal to the transmission control unit 102d.

Please replace paragraph [0094] with the following rewritten paragraph [0094]:

[0094]

Fig. 18B is a block diagram of the transmission control unit 102e shown in Fig. 18A. Like elements in Fig. 18B and the first embodiment shown in Fig. 2C are identified by like reference numeral, and further detailed description thereof is omitted here.

Referring to Fig. 18B, synchronization timer 305 receives the transmission path fluctuation period signals Tv1, Tv2 from the transmission path fluctuation period detection unit 101a shown in Fig. ~~12A~~ 18A and outputs how much time there is when there is no transmission path fluctuation until transmission path fluctuation occurs again.

When data is received from transmission data buffer 306, transmission frame generator 319 determines if the next packets to be transmitted will be transmitted during a transmission path fluctuation period based on signals from the synchronization timer synchronization timer 305.

If the wireless packet transmission period overlaps any part of transmission path fluctuation periods Tv1 and Tv2, the transmission frame generator 319 adds information

indicating modulation using few spatial multiplexing levels to the transmission frame header. However, if the wireless packet transmission period does not overlap any part of transmission path fluctuation periods Tv1 and Tv2, the transmission frame generator 319 adds information indicating modulation using the highest possible spatial multiplexing level to the transmission frame header.

Please replace paragraph [0101] with the following rewritten paragraph [0101]:

[0101]

In this embodiment of the invention the multi-antenna wireless terminal 122 also has three antennae D, E, F, and one transmission/reception switch 107 is rendered for each of the antennae D, E, F.

The reception state detection unit 124 has an ABC splitter 130, an antenna A error rate detector 131, antenna B error rate detector ~~131~~132, antenna C error rate detector ~~131~~133, and an error rate comparator 134.

Please replace paragraph [0114] with the following rewritten paragraph [0114]:

[0114]

Fig. 26A is a block diagram showing the arrangement of a wireless communication apparatus according to an eleventh embodiment of the invention.

As shown in Fig. 26A, a wireless communication apparatus according to this embodiment of the invention has a transmission path fluctuation period detection unit 101a, a transmission control unit 102g to which the transmission path fluctuation period signals Tv1 and Tv2 output by transmission path fluctuation period detection unit 101a are input, a transmission unit 103 to which the transmission signal output by transmission control unit 102g is input, a plurality of transmission/reception switches 107 which are each connected to the transmission unit 103 and switch the input/output signals during transmission and reception, a plurality of antennae 104 each connected to one of the plurality of transmission/reception switches 107, and a reception state detection unit 121. The reception state detection unit 121 demodulates the spatial multiplexing of the

received signal, and generates reception data error information for each channel or wireless transmission path information. This reception data error information or wireless transmission path information is output to transmission path fluctuation period detection unit ~~101~~101a and transmission control unit ~~102~~102g. An AC power supply meter 105 is also rendered in the transmission path fluctuation period detection unit 101a.

Please replace paragraph [0119] with the following rewritten paragraph [0119]:

[0119]

Fig. 26B is a block diagram of the transmission control unit ~~102~~102g shown in Fig. 26A. Like elements in Fig. 26B and the first embodiment shown in Fig. 2C are identified by like reference numeral, and further detailed description thereof is omitted here.

In Fig. 26B, the synchronization timer 305 receives the transmission path fluctuation period signal from the transmission path fluctuation period detection unit 101a shown in Fig. ~~12A~~ 26A and outputs how much time there is when there is no transmission path fluctuation until transmission path fluctuation occurs again. Note that the transmission control unit in a wireless communication apparatus according to this embodiment of the invention has a transmission diversity controller 320 as shown in Fig. 26B.

Please replace paragraph [0125] with the following rewritten paragraph [0125]:

[0125]

In Fig. 27 reference numeral 218 indicates the packets received by the wireless communication apparatus. The received packets include packets containing data errors in part of the spatial channels due to sudden transmission path interference caused by discharge lamp fading. The reception state detection unit 121 outputs to the transmission path fluctuation period detection unit ~~101~~101a whether data errors were detected in the received packets. Reference numeral 219 denotes the transmission timing and number of spatial multiplexing channels used for the wireless packets transmitted by the wireless

communication apparatus according to this embodiment of the invention. The wireless communication apparatus according to this embodiment of the invention transmits wireless packets using directivity-controlled transmission diversity if the transmitted wireless packets overlap a transmission path fluctuation period, and transmits wireless packets using spatial multiplexing if the wireless packet transmission period does not overlap a transmission path fluctuation period.